

FRAMEWORK ADJUSTMENT 2
TO THE
SPINY DOGFISH
FISHERY MANAGEMENT PLAN

**(Includes Regulatory Impact Review and
Initial Regulatory Flexibility Analysis)**

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Mid-Atlantic Fishery Management Council

in cooperation with

the National Marine Fisheries Service

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1.0 EXECUTIVE SUMMARY

Under section 302(h) of the Magnuson-Stevens Act, as amended by the SFA, Regional Fishery Management Councils (Councils) prepare and submit Fishery Management Plans (FMPs) for fisheries under their authority that require conservation and management. The spiny dogfish (*Squalus acanthias*) fishery is jointly managed by the Mid-Atlantic and New England Councils under the Spiny Dogfish FMP. The purpose of this framework is to improve the timeliness and efficiency of incorporating the best available scientific information available, consistent with National Standards 1 and 2, into the annual management processes outlined in § 648.230 for this stock.

This action would broaden the descriptions of stock status determination criteria contained within the Spiny dogfish FMP to allow for greater flexibility in those definitions, while maintaining objective and measurable status determination criteria for identifying when the stock is overfished. Second, this action would identify acceptable categories of peer-review for stock status determination criteria. When these specific peer-review metrics are met and provide new or updated information, the new or revised stock status determination criteria may be incorporated by the Council directly into the annual management measures for each species.

Relative to the no action being taken (Alternative 1), the proposed action (Alternative 2) is not expected to result in any negative or positive biological impacts on the spiny dogfish stock (this is expanded on in Section 6.1). The proposed action is purely administrative; however, there may be indirect positive effects from future adjustments to the status determination criteria – these would be separate actions and any impacts would be analyzed accordingly. These future actions would assist in managing this stock with more accurate or reliable information on stock status. This action does not have a direct influence on fishing effort or fishery removals but instead allows for the use of the most current scientific information available to define the status determination criteria for spiny dogfish, so that the stock can be managed to prevent overfishing and assure it is not overfished.

The proposed action is also not expected to result in any negative or positive biological impacts on non-target species, habitat, endangered and protected resources, or human communities (see Sections 6.2-6.5). This action is not expected to result in changes to the manner in which the spiny dogfish fishery is prosecuted and does not alter the commercial quota for this species or the allocation of the resources among user groups. Because the action deals exclusively with implementing a more efficient process for incorporating updates to status determination criteria into the management process, it does not directly impact fishing effort or effort distribution in the fishery for the managed resource. It simply provides a framework wherein more informed decisions can be made with respect to management.

The Council recommendations under preferred Alternative 2 are presented to NMFS in this document for implementation via rulemaking under the authority of the Secretary of Commerce.

2.0 LIST OF ACRONYMS

<i>CEQ</i>	Council on Environmental Quality
<i>CFR</i>	Code of Federal Regulations
<i>CZMA</i>	Coastal Zone Management Act
<i>EEZ</i>	Exclusive Economic Zone
<i>EFH</i>	Essential Fish Habitat
<i>EIS</i>	Environmental Impact Statement
<i>EO</i>	Executive Order
<i>ESA</i>	Endangered Species Act of 1973
<i>F</i>	Fishing Mortality Rate
<i>FR</i>	Federal Register
<i>FMP</i>	Fishery Management Plan
<i>IRFA</i>	Initial Regulatory Flexibility Analysis
<i>M</i>	Natural Mortality Rate
<i>MAFMC</i>	Mid-Atlantic Fishery Management Council
<i>MMPA</i>	Marine Mammal Protection Act
<i>MRFSS</i>	Marine Recreational Fisheries Statistics Survey
<i>MSFCMA</i>	Magnuson-Stevens Fishery Conservation and Management Act
<i>MSY</i>	Maximum Sustainable Yield
<i>mt</i>	metric tons
<i>NAO</i>	NOAA Administrative Order
<i>NE</i>	New England
<i>NEFMC</i>	New England Fishery Management Council
<i>NEFSC</i>	Northeast Fisheries Science Center
<i>NEPA</i>	National Environmental Policy Act
<i>NERO</i>	Northeast Regional Office (NMFS)
<i>NMFS</i>	National Marine Fisheries Service
<i>NOAA</i>	National Oceanic and Atmospheric Administration
<i>OY</i>	Optimal Yield
<i>PRA</i>	Paperwork Reduction Act
<i>RHL</i>	Recreational Harvest Limit
<i>RIR</i>	Regulatory Impact Review
<i>RFA</i>	Regulatory Flexibility Analysis
<i>SARC</i>	Stock Assessment Review Committee
<i>SAW</i>	Stock Assessment Workshop
<i>SDWG</i>	Southern Demersal Working Group
<i>SSB</i>	Spawning Stock Biomass
<i>SFA</i>	Sustainable Fisheries Act
<i>SSC</i>	Science and Statistical Committee
<i>VPA</i>	Virtual Population Analysis
<i>VTR</i>	Vessel Trip Report

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4.0 INTRODUCTION

The purpose of this framework is to improve the timeliness and efficiency for incorporating the best available scientific information available, consistent with National Standards 1 and 2, into the management process outlined in § 648.230 for spiny dogfish (*Squalus acanthias*).

Currently, to incorporate new stock status determination criteria from updated, peer-reviewed science, the Council must enact a framework adjustment or amendment to the Spiny Dogfish FMP. The stock status determination criteria for this species are defined in Section 3.1.3.1 of the FMP (MAFMC 1999), and provided in Table 2 below. Though these criteria may be modified or replaced through a framework or amendment, the timing of updated survey information, subsequent analysis and peer-review, the framework or amendment process, and setting annual or multiyear specifications means that the availability of the best available scientific information may be significantly delayed from entering the management process. The proposed action would allow for the incorporation of new, peer-reviewed stock status determination criteria, when available, through the management measures (i.e., specification) process. This would allow for more timely incorporation of the best available scientific information into management of the resource.

The spiny dogfish stock undergoes periodic formal scientific peer-review as part of the Northeast Fisheries Science Center's (NEFSC) Stock Assessment Workshop (SAW) process which may result in revised or different stock status determination criteria. Periodic reviews may occur outside the SAW process that are subject to rigorous peer-review and may recommend changes to the existing stock status determination criteria. For example, in 1999, the Mid-Atlantic Council's Science and Statistical Committee (SSC) provided the original biomass target recommendation (200,000 mt), although the Councils later failed to endorse their advice and thus no biomass target currently exists. Additionally, the next peer-review assessment for spiny dogfish is a Transboundary Resource Assessment Committee (TRAC) assessment, which is scheduled for March 2009. There may also be occasions where the results of a peer-review to a stock assessment fail to yield definitive conclusions or may reject outright the stock status determination criteria. This action would outline the steps the Council may take in such situations to have additional review by the SSC so that appropriate recommendations on the best available science are utilized in the management of spiny dogfish. If the peer-review process rejects, for management purposes, different stock status determination criteria or if no new information is available, the existing criteria will remain in place. This framework will also outline the steps that may be taken by the Council to request, or have reviewed, independent stock assessments performed for the stock to ensure that sufficient peer-review occurs.

This action would broaden the descriptions of stock status determination criteria contained within the Spiny Dogfish FMP to allow for greater flexibility in those definitions, while maintaining objective and measurable status determination criteria for identifying when spiny dogfish is overfished. Second, this action would establish acceptable categories of peer-review for stock status determination criteria. When these

specific peer-review metrics are met and new or updated information is available, the new or revised stock status determination criteria may be incorporated by the Council directly into the management measures for spiny dogfish.

4.1 History of FMP Development

The management of the spiny dogfish fishery began through the implementation of the Council's Spiny Dogfish FMP (Table 1). The FMP was developed in response to classification of the stock as overfished in 1998. The plan was approved by the National Marine Fisheries Service (NMFS) in 1999, however implementation through Secretarial Action was delayed until May 2000. Framework 1 was implemented in 2006 in order to allow for specification of multi-year management measures.

Table 1. History of the Spiny Dogfish FMP and framework actions.

History of the Spiny Dogfish FMP		
Year	Document	Management Action
2000	Original FMP	<ul style="list-style-type: none"> • Established management of Atlantic spiny dogfish fisheries • Initiated stock rebuilding plan
2006	Framework 1	<ul style="list-style-type: none"> • Created mechanism for specification of multi-year management measures

4.2 Management Objectives of the FMP

The overall goal of the FMP is to conserve spiny dogfish in order to achieve optimum yield from the resource in the western Atlantic Ocean. The specification of a commercial quota and trip limits meets that overall goal by accomplishing the following objectives, which were adopted into the FMP:

1. Reduce fishing mortality to ensure that overfishing does not occur.
2. Promote compatible management regulations between state and Council jurisdictions and the US and Canada.
3. Promote uniform and effective enforcement of regulations.
4. Minimize regulations while achieving the management objectives stated above.
5. Manage the spiny dogfish fishery so as to minimize the impact of the regulations on the prosecution of other fisheries, to the extent practicable.
6. Contribute to the protection of biodiversity and ecosystem structure and function.

The proposed action is intended to meet objective 1 by defining a timely process for the incorporation of peer-reviewed scientific information on status determination criteria into the management process through specification setting. By utilizing the best available scientific information to define the status determination criteria, management measures can be implemented in a timely manner to prevent overfishing and maintain or rebuild the stock to a level which produces maximum sustainable yield (MSY) on a continuing basis. In addition, by preventing overfishing and managing in a sustainable manner, the proposed action would also meet objective 6.

4.3 Management Unit

The management unit for this FMP is defined as the entire spiny dogfish (*Squalus acanthias*) population along the Atlantic coast of the United States.

4.4 Management Strategy

This document describes and evaluates the potential impacts of a proposed management action to be implemented through the framework adjustment process. The proposed action is consistent with the management objectives described in section 4.2. The Council intends to continue the management programs detailed in the Spiny Dogfish FMP to achieve the management objectives established by the FMP.

4.5 Status of the Stock

Assessment and reference point update reports, Stock Assessment Workshop (SAW) reports, and Stock Assessment Review Committee (SARC) panelist reports are available online at the NEFSC website: <http://www.nefsc.noaa.gov>

At the onset of the domestic fishery in the early 1990's, population biomass for the Northwest Atlantic stock of spiny dogfish was at its highest estimated level (approx. 1.2 billion lbs). The Federal Spiny Dogfish FMP was developed in 1998 and implemented in 2000 in order to halt large scale depletion of reproductively mature female spiny dogfish and allow the stock to recover to a sustainable level. This was a necessary management response under the MSA because the biomass of mature females had been driven below the threshold (100,000 mt) level (NEFSC 1998). Briefly put, the directed dogfish fishery of the 1990s harvested predominantly the largest fish in the stock, and the species' life history is such that these were primarily mature females. Therefore, the recovery plan intended to constrain fishing mortality (F) on mature females at a rate (F_{rebuild}) that would grow the stock to 90% of the nominal biomass target in five years (90% of 200,000 mt nominal target = 180,000). Because the commercial fishery concentrated on mature females, achieving F_{rebuild} required the elimination of the directed fishery. Accordingly, an incidental catch quota (4.0 million lbs) and restrictive trip limits (600 lbs per trip in quota period 1 and 300 lbs per trip in quota period 2) were put in place in the first year the plan was in place. Management measures consistent with discouraging the development of any meaningful directed spiny dogfish fishery have been maintained in Federal waters since implementation of the plan. Most recently, specifications for fishing

years 2006-2008 modified trip limits to be consistent at 600 lbs in both periods. Despite the slight increase, this minor change is still consistent with discouraging directed harvest.

Alternatively, with the exception of 2004, spiny dogfish management in state-jurisdictional waters under the Atlantic States Marine Fisheries Commission (ASMFC) plan has deviated from the Federal plan. For the 2008 fishing year, the quota in state waters has been set at 8.0 million lbs and trip limits up to 3,000 lbs. The inconsistency in the plans, as well as their delayed implementation, is likely to have prolonged the timeframe for stock recovery. Although it is likely that biomass will achieve the nominal target (200,000 mt) within the next 2-3 years, a prolonged period of poor recruitment (1997-2007) is expected to result in stock biomass declining below the target for several years. None of the projections, however, envision the stock declining back to an "overfished" condition.

The most recent peer-reviewed evaluation of the status of the Northwest Atlantic spiny dogfish stock was conducted at the 43rd Northeast Regional Stock Assessment Workshop (NEFSC 2006). According to that assessment the spiny dogfish stock is not overfished in 2005, and overfishing is not occurring. At their Sept 19, 2007 meeting, a more recent assessment update was evaluated by the Spiny Dogfish Monitoring Committee. The Committee noted that the SSB estimate had increased substantially to 141,350 mt in 2006. Additionally, fishing mortality (0.109) was roughly equivalent to the F_{rebuild} target (0.11). Both of these suggest that the current management approach is effectively achieving the rebuilding goals of the FMP.

5.0 MANAGEMENT ALTERNATIVES

Under National Standard 1, the SFA requires that each Council FMP define overfishing as a rate or level of fishing mortality that jeopardizes a fishery's capacity to produce MSY on a continuing basis and defines an overfished stock as a stock size that is less than a minimum biomass threshold. The SFA also requires that each FMP specify objective and measurable status determination criteria for identifying when stocks or stock complexes covered by the FMP are overfished. To fulfill the requirements of the SFA, status determination criteria are comprised of two components: 1) a maximum fishing mortality threshold (section 600.310 (d)(2)(i)) and 2) a minimum stock size threshold (section 600.310 (d)(2)(ii)).

5.1 Alternative 1 (No Action)

Under this no action alternative, the status determination criteria, which include a maximum fishing mortality threshold (F_{MSY} ; or reasonable proxy thereof) and the minimum stock size threshold and target (or reasonable proxy thereof) for spiny dogfish would remain unchanged as defined in the FMP. These are defined in Section 3.1.3.1 of the FMP, and provided in Table 2, below.

Table 2. Status determination criteria established in the Spiny Dogfish FMP.

Reference point	Basis	Estimated value
Biomass target	Undefined – The MAFMC's SSC recommended 100% of SSB_{max} however the Councils recommended 90% of SSB_{max} and this was rejected.	N/A [SSB_{max} = 441 million pounds (200,000 mt)]
Biomass threshold	$\frac{1}{2} SSB_{max}$	220 million pounds (100,000 mt) female SSB
Fishing mortality target during rebuilding	The fishing mortality rate that would allow stock production at 2 pups per recruit.	0.11
Fishing mortality target (for rebuilt stock)	The fishing mortality rate that would allow stock production at 1.5 pups per recruit.	0.29
Fishing mortality threshold	The fishing mortality rate that stabilizes the population (1 pup per recruit)	0.39

Importantly, the biomass target proposed by the Councils in the FMP was rejected and, therefore, no biomass target currently exists. This would not be the case if the Councils had recommended the SSC-proposed biomass target of 100% of maximum spawning stock biomass (SSB_{max} - the female spawning stock biomass calculated to produce maximum recruitment). The Councils instead recommended the target be set at 90% of SSB_{max} . As stated above, the other definitions of status determination criteria have remained unchanged since they were described the FMP and may only be modified by a framework to the FMP. Updates to the values associated with those definitions based on updated stock assessments have occurred since the implementation of the FMP, when new information has become available. The Council is not required to undertake any specific action when this occurs, as using the updated values is consistent with National Standard 2.

Under this no action alternative, review of definitions of the status determination criteria and incorporation of changes to those definitions for this species would remain unchanged and as defined (or not) in the FMP. Specifically, these definitions would continue to be updated through the framework adjustment or amendment process as necessary.

5.2 Alternative 2 (Preferred: Redefine the Status Determination Criteria)

Under this alternative, the status determination criteria for spiny dogfish would be defined as follows.

The maximum fishing mortality threshold is defined as F_{MSY} (or a reasonable proxy thereof) as a function of productive capacity, and based upon the best scientific information consistent with National Standards 1 and 2. Specifically, F_{MSY} is the fishing mortality rate associated with MSY. The maximum fishing mortality threshold (F_{MSY}) or a reasonable proxy may be defined as a function of (but not limited to): total stock biomass, spawning stock biomass, total egg production, and may include males, females, both, or combinations and ratios thereof which provide the best measure of productive capacity for spiny dogfish. Exceeding the established fishing mortality threshold constitutes overfishing as defined by the Magnuson-Stevens Act.

The minimum stock size threshold for spiny dogfish is defined as $\frac{1}{2} B_{MSY}$ (or a reasonable proxy thereof) as a function of productive capacity, and based upon the best scientific information consistent with National Standards 1 and 2. The minimum stock size threshold ($\frac{1}{2} B_{MSY}$) or a reasonable proxy may be defined as a function of (but not limited to): total stock biomass, spawning stock biomass, total egg production, and may include males, females, both, or combinations and ratios thereof which provide the best measure of productive capacity for each of the species managed under the FMP. The minimum stock size threshold is the level of productive capacity associated with the relevant $\frac{1}{2}$ MSY level. Should the measure of productive capacity for the stock or stock complex fall below this minimum threshold, the stock or stock complex is considered to be overfished. The target for rebuilding is specified as B_{MSY} (or reasonable proxy thereof) at the level of productive capacity associated with the relevant MSY level, under the same definition of productive capacity as specified for the minimum stock size threshold.

The definitions for status determination criteria for spiny dogfish are broadened under this alternative to allow for greater flexibility in incorporating changes to the definitions of the maximum fishing mortality threshold and/or minimum stock size threshold as the best scientific information consistent with National Standards 1 and 2 becomes available. As such, the following describes the potential sources of peer-reviewed scientific advice on status determination criteria and the current process of how that scientific advice will move forward in the development of management advice through the Council's specification process.

Specific definitions or modifications to the status determination criteria, and their associated values, would result from the most recent peer-reviewed stock assessments and their panelist recommendations. The Northeast Regional Stock Assessment Workshop/ Stock Assessment Review Committee (SAW/SARC) process is the primary mechanism utilized in the Northeast Region at present to review scientific stock assessment advice, including status determination criteria, for federally-managed species. There are also periodic reviews that occur outside the SARC process that are subject to

rigorous peer-review and may also result in scientific advice to modify or change the existing stock status determination criteria¹.

These periodic reviews outside the SARC process could be conducted by any of the following listed below, as deemed appropriate by the managing authorities.

- Transboundary Resource Assessment Committee (TRAC), composed of both U.S. and Canadian scientists
- MAFMC Science and Statistical Committee (SSC) Review
- MAFMC Externally Contracted Reviews with Independent Experts (e.g., Center for Independent Experts - CIE)
- NMFS Internally Conducted Review (e.g., Comprised of NMFS Scientific and Technical Experts from NMFS Science Centers or Regions)
- NMFS Externally Contracted Review with Independent Experts (e.g., Center for Independent Experts - CIE)

The scientific advice provided with respect to status determination criteria could follow three scenarios (Figure 1; first column). First, it is possible that the panelists participating in the peer-review reach consensus with respect to maintaining the current definitions of status determination criteria for spiny dogfish. There may be updates to the values associated with those same definitions based on the input of more recent information as well (i.e., additional year's data); however, the Council is not required to undertake any specific action when this occurs, as using the updated values is consistent with National Standard 2. In this case the scientific advice can then move forward such that management advice can be developed. Under the second potential scenario for scientific advice (Figure 1; second column), the peer-review recommends changes or different definitions of the status determination criteria, and the panelists reach consensus as to how these status determination criteria should be modified or changed. This scientific advice can move forward such that management advice can be developed. Under these first two potential scenarios, consensus has been reached and therefore the scientific advice moving forward to the Council's management advisory groups should be clear.

The third potential scenario (Figure 1; third column) is the peer review scientific advice with respect to the incorporation to status determination criteria is split (consensus is not reached) or uncertain recommendations are provided (weak consensus). The scientific advice provided by the reviewers may be particularly controversial. In addition, the scientific advice may not be specific enough to provide adequate guidance as to how the maximum fishing mortality threshold and/or minimum stock size threshold should be defined or what resulting management advice should be developed from these changes. Under these circumstances, the Council may engage their SSC or a subset of SSC members with appropriate expertise, to review the information and recommendations provided by the peer-review group. Based on the terms of reference provided to the SSC, they may prepare a consensus report clarifying the scientific advice for the Council as to

¹ For example, in 1999, scientific advice on spiny dogfish status determination criteria was provided through a MAFMC SSC review. The review panel was composed of experts from NMFS and academia.

what the status determination criteria should be (e.g., modify, change, or maintain the same definitions). At that point the scientific advice on how the status determination criteria should be defined should be clear, and can move forward such that management advice can be developed.

Currently, the first step in the development of management advice through the Council process occurs at the Monitoring Committee level for the species, as implemented under the FMP. The Spiny Dogfish Monitoring Committee consists of staff representatives of the MAFMC, New England Fishery Management Council (NEFMC), the NMFS Northeast Regional Office, the Northeast Fisheries Science Center, and the states, as well as two ex-officio industry members (one from each Council jurisdiction). The MAFMC Executive Director or a designee chairs the committee. In addition, the Council's Industry Advisory groups are often engaged to provide additional management recommendations to the Council. The Council can then utilize the management advice from their advisory groups in developing their own recommendations put forward through the regulatory process of setting the specifications for the upcoming fishing year(s), which is the primary mechanism for adjusting management measures to meet the goals of the FMP. The recommendations from the Council can move forward in the specification package (including an EA/RIR/IRFA) to NMFS for implementation under their regulatory process. The EA/RIR/IRFA in the specification document provides a thorough analysis of this information and the extent to which the information is applied.

The 2006 reauthorization of the Magnuson-Stevens Act contains language which states that "Each scientific and statistical committee shall provide its Council ongoing scientific advice for fishery management decisions" (section 600.302 (g)(1)(B)). In a memo dated May 19, 2008, The NMFS Northeast Regional Administrator reminded the Council of the requirement in the reauthorized Magnuson-Stevens Act to obtain and consider the advice of its SSC. Further, the Regional Administrator requested that the SSC review the Monitoring Committee recommendations and provide a written report from the SSC Chair to the Council Chair. The Councils may consider changing the process under which these advisory groups are utilized in the future². Action taken, if any, to modify the present process of developing management advice from the peer-reviewed scientific advice received, and the manner in which Council advisory groups are utilized would be intended to improve the manner in which management advice is developed by the Council. Modification to the current management process to more fully incorporate the SSC may require an amendment, modification to the Council's standard operating procedures (SOPs), or both.

² For example, the Council may consider utilizing the SSC or a subset of SSC members with appropriate expertise, independently or in conjunction with the species Monitoring Committee in the development of management advice based on the scientific recommendations provided by a peer-review group.

Scientific Advice on Status Determination Criteria: 3 Possible Outcomes

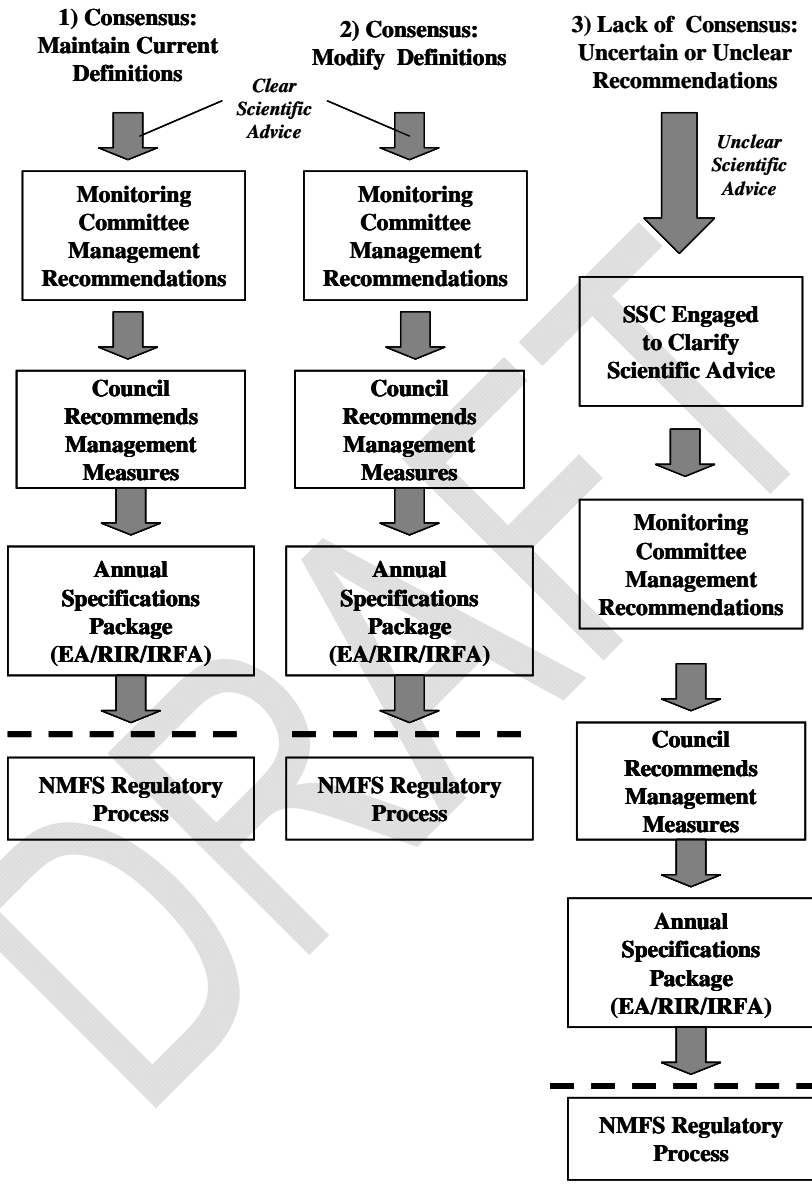


Figure 1. Process for incorporation of peer-reviewed scientific advice on stock status determination criteria into the management process for spiny dogfish.

Comment [jg1]: Given recent guidance, might consider inserting SSC review into this figure between the Monitoring Committee and Council

6.0 IMPACTS OF THE ALTERNATIVES

6.1 Targeted Fishery Resource

Alternative 1 (No action) is not expected to result in significant negative or positive biological impacts on the spiny dogfish stock. Relative to the no action alternative, Alternative 2 is not expected to result in significant negative or positive biological impacts on the spiny dogfish stock. This action merely revises the current definitions of the stock status determination criteria for spiny dogfish and defines the process by which updates to status determination criteria are integrated into the management process.

This action is purely administrative; however, there may be indirect positive effects from managing this stock with more accurate or reliable information on stock status. This action does not directly influence fishing effort or fishery removals but instead facilitates use of the most current scientific information available to define the status determination criteria for these stocks, so this stock can be managed to prevent overfishing and managed such that spiny dogfish are not overfished. By allowing peer-reviewed scientific updates on status determination criteria to be incorporated into the management process more efficiently (not requiring an extensive framework adjustment process), managers can more effectively respond to changes in stock status and make timely adjustments to the management programs for the stock. This improvement in efficiency will aid in managing this stock for sustainability.

6.2 Non-Target Species or Bycatch

Alternative 1 (No action) is not expected to result in significant negative or positive impacts on non-target species. Relative to the no action alternative, Alternative 2 is not expected to result in significant negative or positive impacts on non-target species. This action merely revises the current definitions of the stock status determination criteria for the species and defines the process by which updates to status determination criteria are integrated into the management process.

This action is purely administrative; therefore, it is not expected to result in changes in discarding rates of spiny dogfish when targeted, discarding rates when fishing for non-target species, or increased discarding of non-target species.

6.3 Habitat (Including Essential Fish Habitat)

Alternative 1 (No action) is not expected to result in significant negative or positive impacts on habitat. Relative to the no action alternative, Alternative 2 is not expected to result in significant negative or positive impacts on habitat. This action merely revises the current definitions of the stock status determination criteria for the species and defines the process by which updates to status determination criteria are integrated into the management process.

The proposed action is purely administrative; therefore, it is not expected to result in changes to the manner in which the spiny dogfish fisheries are prosecuted or to the habitat.

6.4 Endangered and Other Protected Resources

Alternative 1 (No action) is not expected to result in significant negative or positive impacts on endangered or protected resources. Relative to the no action alternative, Alternative 2 is not expected to result in significant negative or positive impacts on endangered or protected resources. This action merely revises the current definitions of the stock status determination criteria for the species and defines the process by which updates to status determination criteria are integrated into the management process.

The proposed action is purely administrative; therefore, it is not expected to result in changes to the manner in which the spiny dogfish fishery is prosecuted or to the endangered or other protected species.

6.5 Socioeconomic Environment

Alternative 1 (No action) is not expected to result in significant negative or positive impacts on the social and economic environment. Relative to the no action alternative, Alternative 2 is not expected to result in significant negative or positive impacts on the social and economic environment. This action merely revises the current definitions of the stock status determination criteria for the species and defines the process by which updates to status determination criteria are integrated into the management process.

The proposed action is purely administrative; therefore, it does not alter the coastwide harvest limits for this species or the allocation of the resources among user groups, with no direct impact on fishing effort or effort distribution in the spiny dogfish fishery.

7.0 CONSISTENCY WITH APPLICABLE LAWS

7.1 Magnuson-Stevens Fishery Conservation and Management Act

7.1.1 Compliance with the National Standards

This action is purely administrative and does not have a direct influence on fishing effort, or fishery removals but instead facilitates use of the most current scientific information available to define the status determination criteria for the stock, so the stock can be managed to prevent overfishing and managed such that spiny dogfish are not overfished. As such, the proposed action is expected to comply with both National Standards 1 and 2. The proposed action has no effect on the management units for spiny dogfish, or any FMP for the Northeast Region; therefore, it is consistent with National Standard 3. This proposed action does not alter the coastwide harvest limits for these species, the allocation of the resources among user groups, or the efficiency by which fishery resources are utilized. In addition, economic allocation was not a factor in the

development of this action. Therefore, this action is also consistent with National Standards 4 and 5. National Standard 6 has no bearing or relevance on this action as it is purely administrative and has no impact on any fishery, fishery resource, or catch; therefore, this action is consistent with that standard. By increasing flexibility and improving the timeliness of incorporating the best available scientific information, consistent with National Standards 1 and 2, into the management processes, this action will reduce the burden on Council and NOAA Fisheries which should contribute to a reduction in management costs and regulatory duplication; therefore, this action is consistent with National Standard 7. Because no social or economic impacts are expected from this proposed action, it is consistent with National Standard 8. National Standard 9 has no bearing or relevance on this action as it is purely administrative and does not impact bycatch; therefore, this action is consistent with that standard. Concerns relating to safety of human life at sea (under National Standard 10) are not affected by the proposed action as it is purely administrative; therefore, this action is consistent with that standard.

7.1.2 Compliance with Other Requirements of the Magnuson-Stevens Act

Section 303 of the Magnuson-Stevens Act contains 14 additional required provisions for FMPs, which are discussed below. Any FMP prepared by any Council, or by the Secretary, with respect to any fishery, must comply with these provisions. The following described how those provisions have been met.

A description of the proposed management alternatives intended to improve the management for spiny dogfish are provided in section 5.0 of this framework, a discussion of consistency with the National Standards is provided in section 7.1.1 of this framework, and a discussion of the consistency with other applicable law are provided in sections 7.2-7.11 (Provision 1). The proposed action does not directly affect fishing vessels or the type or quantity of fishing gear used; therefore, a description of these aspects of the fishery is not applicable (Provision 2). A thorough description of spiny dogfish is included in the FMP, specifically in section 2.0 of the original FMP (MAFMC 1999). Recreational interests, foreign fishing, and Indian treaty fishing rights are not affected by this action (Provision 3). Maximum sustainable yield and optimum yield of spiny dogfish are not affected by the proposed action, as it is limited to a modification of the administrative process by which biological reference points are incorporated into management; therefore, it is not necessary to assess the probably future condition of the fishery (Provision 3). The proposed action does not affect the capacity or extent to which fishing vessels of the U.S. would harvest the optimum yield of any fishery, the portion of such optimum yield which would not be harvested by U.S. fishing vessels and could be made available for foreign fishing, or the capacity and extent to which U.S. processors would process that portion of such optimum yield harvested by U.S. fishing vessels; therefore, a description of these aspects of the fishery is not applicable to this action (Provision 4). The proposed action does nothing to change the types or amounts of pertinent data that will be reported to the Secretary (Provision 5), nor does it affect the access of any fishing vessel to any fishery because of weather, ocean conditions, or any other potential concern (Provision 6). The proposed action makes no changes to EFH for

any species (Provision 7). Due to the administrative nature of the measures in the proposed action, there would be no direct impacts on any habitat or EFH; therefore, an EFH consultation is not required. In addition, the proposed action contains no measures that will modify the nature and extent of data needed for effective monitoring and implementation of FMP objectives (Provision 8). The proposed action contains no measures that will affect participants in the spiny dogfish fishery and fishing communities, and participants in fishery conducted in adjacent areas will not be affected (Provision 9). This action will continue to result in the specification of objective and measurable criteria for identifying when the fishery to which the plan applies is overfished and only proposes an administrative action (Provision 10). This action is purely administrative and therefore has no effect on bycatch or bycatch mortality (Provision 11) or upon any recreational fishing activity (Provision 12). No harvesting sector of the spiny dogfish fishery will be directly affected by the proposed action (Provision 13), nor does it include management measures that could reduce the overall harvest in a fishery or the allocation of harvest restrictions or recovery benefits among the commercial, recreational, and charter fishing sectors (Provision 14).

7.2 National Environmental Policy Act

This action is categorically excluded from the requirement to prepare an environmental assessment, in accordance NOAA Administrative Order (NAO) 216-6, Sections 5.05 and 6.03a.3, because it is entirely administrative in nature.

7.3 Endangered Species Act

Section 6.4 should be referenced for an assessment of the impacts of the proposed action on endangered species and protected resources. The proposed action is purely administrative; therefore, it is not expected to result in changes to the manner in which the spiny dogfish fishery is prosecuted. Therefore, this action is not expected to affect endangered or threatened species or critical habitat in any manner.

7.4 Marine Mammal Protection Act

Section 6.4 should be referenced for an assessment of the impacts of the proposed action on marine mammals. The proposed action is purely administrative; therefore, it is not expected to result in changes to the manner in which the spiny dogfish fishery is prosecuted. Therefore, this action is not expected to affect endangered or threatened species or critical habitat in any manner.

7.5 Coastal Zone Management Act

The Coastal Zone Management Act (CZMA) of 1972, as amended, provides measures for ensuring stability of productive fishery habitat while striving to balance development pressures with social, economic, cultural, and other impacts on the coastal zone. It is

recognized that responsible management of both coastal zones and fish stocks must involve mutually supportive goals.

The measures contained in Framework Adjustment 2 have no effects on any coastal use or resource of any state, pursuant to 15 CFR 930.33(a)(2). A negative determination under § 930.35 is not required.

7.6 Administrative Procedure Act

Sections 551-553 of the Federal Administrative Procedure Act establish procedural requirements applicable to rulemaking by Federal agencies. The purpose is to ensure public access to the Federal rulemaking process and to give the public notice and an opportunity to comment before the agency promulgates new regulations.

The Administrative Procedure Act requires solicitation and review of public comments on actions taken in the development of a fishery management plan and subsequent amendments and framework adjustments. Development of this framework document provided many opportunities for public review, input, and access to the rulemaking process. This proposed framework document was developed as a result of a multi-stage process that involved review by affected members of the public. The public had the opportunity to review and comment on these actions during MAFMC Meetings held on **blank** and **blank**, and NEFMC meetings held on **blank** and **blank**. In addition, the public will have further opportunity to comment on this framework document once NMFS publishes a request for comments notice in the Federal Register (FR).

7.7 Section 515 (Information Quality Act)

Pursuant to NMFS guidelines implementing Section 515 of Public Law 106-554 (the Information Quality Act), all information products released to the public must first undergo a Pre-Dissemination Review to ensure and maximize the quality, objectivity, utility, and integrity of information (including statistical information) disseminated by Federal agencies. To facilitate the Pre-Dissemination Review, this document addresses the utility, integrity, and objectivity of the information included in the document and used as the basis for making decisions regarding the proposed action.

Utility

Utility means that disseminated information is useful to its intended users. “Useful” means that the content of the information is helpful, beneficial, or serviceable to its intended users, or that the information supports the usefulness of other disseminated information by making it more accessible or easier to read, see, understand, obtain or use.

The information presented in this document is helpful to the intended users (the affected public) by presenting a clear description of the purpose and need of the proposed action, the alternatives to the proposed action considered by the Council, and the analyses of the potential impacts of the proposed action to fishery resources, habitat, protected resources,

and affected entities and communities so that intended users may have a full understanding of the proposed action and its implications.

This document is the first and only information product that provides the information described above. It includes the most current available relevant data and provides these data in a form that is intended to be useful and accessible to the public.

This document will be made available to the public via several media: Online, through the NMFS Northeast Regional Office web page at <http://www.nero.noaa.gov>; in hardcopy, available at the request of the public; and at Council meetings. Online, the document will be available in a standard format for such documents, that of “Portable Document Format,” or PDF.

Integrity

Integrity refers to security--the protection of information from unauthorized access or revision, to ensure that the information is not compromised through corruption or falsification. Prior to dissemination, NMFS information, independent of the specific intended distribution mechanism, is safeguarded from improper access, modification, or destruction, to a degree commensurate with the risk and magnitude of harm that could result from the loss, misuse, or unauthorized access to or modification of such information.

All electronic information disseminated by NMFS adheres to the standards set out in Appendix III, “Security of Automated Information Resources,” of OMB Circular A-130; the Computer Security Act; and the Government Information Security Act. All confidential information (e.g., dealer purchase reports) is safeguarded pursuant to the Privacy Act; Titles 13, 15, and 22 of the U.S. Code (confidentiality of census, business, and financial information); the Confidentiality of Statistics provisions of the Magnuson-Stevens Act; and NOAA Administrative Order 216-100, Protection of Confidential Fisheries Statistics.

Objectivity

Objective information is presented in an accurate, clear, complete, and unbiased manner, and in proper context. The substance of the information is accurate, reliable, and unbiased; in the scientific, financial, or statistical context, original and supporting data are generated and the analytical results are developed using sound, commonly accepted scientific and research methods. “Accurate” means that information is within an acceptable degree of imprecision or error appropriate to the particular kind of information at issue and otherwise meets commonly accepted scientific, financial, and statistical standards.

This document is considered, for purposes of the Pre-Dissemination Review, to be a “Natural Resource Plan.” Accordingly, the document adheres to the published standards of the Magnuson-Stevens Act; the Operational Guidelines, Fishery Management Plan

Process; and NOAA Administrative Order 216-6, Environmental Review Procedures for Implementing the National Environmental Policy Act (NEPA).

The review process for this framework adjustment involves the Councils, the NEFSC, the Northeast Regional Office, and NMFS headquarters. The NEFSC's technical review is conducted by senior level scientists with specialties in population dynamics, stock assessment methods, demersal resources, population biology, and the social sciences. These reviewers will comment on the technical merits of any analyses included in this document. The Council review process involves public meetings at which affected stakeholders have opportunity to provide comments on the framework document. Review by staff at the Regional Office is conducted by those with expertise in fisheries management and policy, habitat conservation, protected species, and compliance with the applicable law. Final approval of the document and clearance of the rule is conducted by staff at NMFS Headquarters, the Department of Commerce, and the U.S. Office of Management and Budget.

7.8 Paperwork Reduction Act

The Paperwork Reduction Act (PRA) concerns the collection of information. The intent of the PRA is to minimize the Federal paperwork burden for individuals, small businesses, state and local governments, and other persons as well as to maximize the usefulness of information collected by the Federal government. There are no changes to the existing reporting requirements previously approved under this FMP for vessel permits, dealer reporting, or vessel logbooks. This action does not contain a collection-of-information requirement for purposes of the PRA.

7.9 Impacts of the Plan Relative to Federalism/EO 13132

This framework document does not contain policies with federalism implications sufficient to warrant preparation of a federalism assessment under Executive Order (EO) 13132.

7.10 Environmental Justice/EO 12898

This EO provides that “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.” EO 12898 directs each Federal agency to analyze the environmental effects, including human health, economic, and social effects of Federal actions on minority populations, low-income populations, and Indian tribes, when such analysis is required by NEPA. Agencies are further directed to “identify potential effects and mitigation measures in consultation with affected communities, and improve the accessibility of meetings, crucial documents, and notices.” Since the proposed action is not expected to affect participation in the spiny dogfish fishery, no negative economic or social effects are anticipated as a result (section 6.5). Therefore, the proposed action under the preferred alternative is not expected to cause

disproportionately high and adverse human health, environmental or economic effects on minority populations, low-income populations, or Indian tribes.

7.11 Regulatory Impact Review

7.11.1 Introduction

The National Marine Fisheries Service requires the preparation of a Regulatory Impact Review (RIR) for all regulatory actions that either implement a new FMP or significantly amend an existing plan. If an action would have a significant impact on a substantial number of small entities, an Initial Regulatory Flexibility Analysis must be prepared to identify the need for action, alternatives, potential costs and benefits of the action, the distribution of these impacts, and a determination of net benefits.

As discussed below, an Initial Regulatory Flexibility Analysis (IRFA) to evaluate the economic impacts of the alternatives on small business entities is not necessary because the proposed action is purely administrative and results in no direct or indirect impacts on the social and economic aspects of human communities.

7.11.2 Evaluation of EO 12866 Significance

EO 12866 requires that the Office of Management and Budget (OMB) review proposed regulatory programs that are considered to be significant. A “significant regulatory action” is one that is likely to: (1) Have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, safety, or state, local, or tribal Governments or communities; (2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; (3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs, or the rights and obligations of recipients thereof; or (4) raise novel legal or policy issues arising out of legal mandates, the President’s priorities, or the principles set forth in this Executive Order.

A regulatory program is “economically significant” if it is likely to result in the effects described above. The RIR is designed to provide information to determine whether the proposed regulation is likely to be “economically significant.” Because none of the factors defining “significant regulatory action” are triggered by this proposed action, the action has been determined to be not significant for the purposes of EO 12866.

7.11.2.1 Description of the Management Objectives

A complete description of the purpose and need and objectives of this framework action are found under section 4.0 of this document. This action is taken under the authority of the Magnuson-Stevens Act and regulations under 50 CFR part 648.

7.11.2.2 Description of the Fishery

A general description of the spiny dogfish fishery is available in the Spiny Dogfish FMP (MAFMC 1999).

7.11.2.3 A Statement of the Problem

A statement of the problem for resolution is presented under section 4.0 of this document.

7.11.2.4 A Description of Each Alternative

A full description of the alternatives is presented in section 5.0 of this document.

7.11.2.5 RIR Impacts

There are no social and economic impacts associated with the proposed action, as discussed in section 6.5.

Therefore, the proposed action does not constitute a significant regulatory action under EO 12866 for the following reasons. This action is not expected to have an annual effect on the economy of more than \$100 million as described in section 6.5. Second, this action should not create a serious inconsistency or otherwise interfere with an action taken or planned by another agency. Third, this action will not materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of their participants. And, fourth, the proposed action does not raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in EO 12866. Based on the results of the RIR, this action is not significant under EO 12866.

8.0 LITERATURE CITED

MAFMC. 1999. Spiny Dogfish Fishery Management Plan. Dover, DE. 195 p. + Appendices

Northeast Fisheries Science Center (NEFSC). 1998. Report of the 26th Northeast Regional Stock Assessment Workshop: Stock Assessment Review Committee Consensus Summary of Assessments. NEFSC Ref. Doc. 98-03.

Northeast Fisheries Science Center (NEFSC). 2006. Report of the 43rd Northeast Regional Stock Assessment Workshop: Stock Assessment Review Committee Consensus Summary of Assessments. NEFSC Ref. Doc. 06-25.

9.0 LIST OF PREPARERS OF THIS FRAMEWORK

Framework 2 to the Spiny Dogfish FMP was submitted to NMFS by the MAFMC. This framework was prepared by the following members of the MAFMC staff: Jim Armstrong.

10.0 LIST OF AGENCIES AND PERSONS CONSULTED

In order to ensure compliance with NMFS formatting requirements, the advice of NMFS Northeast Region personnel was sought, including Jamie Goen and Michael Pentony.

GLOSSARY

Amendment. A formal change to a fishery management plan (FMP). The Council prepares amendments and submits them to the Secretary of Commerce for review and approval. The Council may also change FMPs through a "framework adjustment" (see below).

B. Biomass, measured in terms of total weight, spawning capacity, or other appropriate units of production.

B_{MSY}. Long term average exploitable biomass that would be achieved if fishing at a constant rate equal to F_{MSY} . For most stocks, B_{MSY} is about $\frac{1}{2}$ of the carrying capacity. Overfishing definition control rules usually call for action when biomass is below $\frac{1}{4}$ or $\frac{1}{2}$ B_{MSY} , depending on the species.

B_{target}. A desirable biomass to maintain fishery stocks. This is usually synonymous with B_{MSY} or its proxy.

B_{threshold}. 1) A limit reference point for biomass that defines an unacceptably low biomass i.e., puts a stock at high risk (recruitment failure, depensation, collapse, reduced long term yields, etc). 2) A biomass threshold that the SFA requires for defining when a stock is overfished. A stock is overfished if its biomass is below $B_{threshold}$. A determination of overfished triggers the SFA requirement for a rebuilding plan to achieve B_{target} as soon as possible, usually not to exceed 10 years except certain requirements are met. $B_{threshold}$ is also known as $B_{minimum}$, or B_{min} .

Bycatch. Fish that are harvested in a fishery, but which are not sold or kept for personal use. This includes economic discards and regulatory discards. The fish that are being targeted may be bycatch if they are not retained.

Commission. Atlantic States Marine Fisheries Commission.

Committee. The Monitoring Committee, made up of staff representatives of the MAFMC, NEFMC, the NMFS Northeast Regional Office, the Northeast Fisheries Science Center, and the states, as well as two ex-officio industry members (one from each

Council jurisdiction). The MAFMC Executive Director or a designee chairs the committee.

Conservation equivalency. The approach under which states are required to develop, and submit to the Commission for approval, state-specific management measures (i.e., possession limits, size limits, and seasons) designed to achieve state-specific harvest limits.

Control rule. A pre-determined method for determining rates based on the relationship of current stock biomass to a biomass target. The biomass threshold ($B_{\text{threshold}}$ or B_{min}) defines a minimum biomass below which a stock is considered overfished.

Council. The Mid-Atlantic Fishery Management Council.

Councils. The Mid-Atlantic Fishery Management Council and the New England Fishery Management Council.

Environmental Impact Statement. An analysis of the expected impacts of a fishery management plan (or some other proposed Federal action) on the environment and on people, initially prepared as a "Draft" (DEIS) for public comment. After an initial EIS is prepared for a plan, subsequent analyses are called "Supplemental." The Final EIS is referred to as the Final Supplemental Environmental Impact Statement (FSEIS).

Exclusive Economic Zone. For the purposes of the Magnuson-Stevens Fishery Conservation and Management Act, the area from the seaward boundary of each of the coastal states to 200 nautical miles from the baseline.

Fishing for spiny dogfish. Any activity, other than scientific research vessel activity, which involves: (a) the catching, taking, or harvesting of spiny dogfish; (b) any other activity which can reasonably be expected to result in the catching, taking, or harvesting of spiny dogfish; or (c) any operations at sea in support of, or in preparation for, any activity described in paragraphs (a) or (b) of this definition.

Fishing effort. The amount of time and fishing power used to harvest fish. Fishing power is a function of gear size, boat size, and horsepower.

Fishing mortality rate. The part of the total mortality rate (which also includes natural mortality) applying to a fish population that is caused by man's harvesting. Fishing mortality is usually expressed as an instantaneous rate (F), and can range from 0 for no fishing to very high values such as 1.5 or 2.0. The corresponding annual fishing mortality rate (A) is easily computed but not frequently used. Values of A that would correspond to the F values of 1.5 and 2.0 would be 78% and 86%, meaning that there would be only 22% and 14% of the fish alive (without any natural mortality) at the end of the year that were alive at the beginning of the year. Fishing mortality rates are estimated using a variety of techniques, depending on the available data for a species or stock.

F_{max}. A calculated instantaneous fishing mortality rate that is defined as "the rate of fishing mortality for a given method of fishing that maximizes the harvest in weight taken from a single year class of fish over its entire life span".

F_{MSY}. A fishing mortality rate that would produce MSY when the stock biomass is sufficient for producing MSY on a continuing basis.

Framework adjustments. Adjustments within a range of measures previously specified in a fishery management plan (FMP). A change usually can be made more quickly and easily by a framework adjustment than through an amendment. For plans developed by the Mid-Atlantic Council, the procedure requires at least two Council meetings including at least one public hearing and an evaluation of environmental impacts not already analyzed as part of the FMP.

F_{target}. The target fishing mortality rate, equal to the annual F determined from the selected rebuilding schedule for overfished resources (i.e., butterfish) and Council selected fishing mortality level for non-overfished resources (i.e., surfclams). Overfishing occurs when the overfishing target is exceeded.

F_{threshold}. 1) The maximum fishing mortality rate allowed on a stock and used to define overfishing for status determination. 2) The maximum fishing mortality rate allowed for a given biomass as defined by a control rule.

Landings. The portion of the catch that is harvested for personal use or sold.

Metric ton. A unit of weight equal to 1,000 kilograms (1 kg = 2.2 lb.). A metric ton is equivalent to 2,205 lb. A thousand metric tons is equivalent to 2.2 million lb.

MSY. Maximum sustainable yield. The largest long-term average yield (catch) that can be taken from a stock under prevailing ecological and environmental conditions.

Natural Mortality Rate. The part of the total mortality rate applying to a fish population that is caused by factors other than fishing. This may include disease, senility, predation, pollution, etc., with all sources of natural mortality being considered together. Natural mortality is usually expressed as an instantaneous rate, and is abbreviated as "M". An instantaneous mortality rate reflects the percentage of fish dying at any one time, as compared to an annual rate which reflects the percentage of fish dying in one year. Natural mortality is differentiated from the instantaneous fishing mortality rate, "F". Together, these comprise the instantaneous total mortality rate, "Z" (i.e., $Z = F + M$). Natural mortality rates can be estimated using a variety of techniques depending on data availability. As compared to fishing mortality, natural mortality is often difficult to investigate because direct evidence about the timing or magnitude of natural deaths is rarely available.

Overfished. An overfished stock is one "whose size is sufficiently small that a change in management practices is required to achieve an appropriate level and rate of rebuilding."

A stock or stock complex is considered overfished when its population size falls below the minimum stock size threshold (MSST). A rebuilding plan is required for stocks that are deemed overfished. A stock is considered “overfished” when exploited beyond an explicit limit beyond which its abundance is considered ‘too low’ to ensure safe reproduction.

Overfishing. According to the National Standard Guidelines, “overfishing occurs whenever a stock or stock complex is subjected to a rate or level of fishing mortality that jeopardizes the capacity of a stock or stock complex to produce maximum sustainable yield (MSY) on a continuing basis.” Overfishing is occurring if the maximum fishing mortality threshold (MFMT) is exceeded for 1 year or more. In general, it is the action of exerting fishing pressure (fishing intensity) beyond the agreed optimum level. A reduction of fishing pressure would, in the medium term, lead to an increase in the total catch.

Party/Charter boat. Any vessel which carries passengers for hire to engage in fishing.

Recruitment. The addition of fish to the fishable population due to migration or to growth. Recruits are usually fish from one year class that have just grown large enough to be retained by the fishing gear.

Spawning Stock Biomass. The total weight of all sexually mature fish in the population. This quantity depends on year class abundance, the exploitation pattern, the rate of growth, fishing and natural mortality rates, the onset of sexual maturity and environmental conditions.

Status Determination. A determination of stock status relative to $B_{\text{threshold}}$ (defines overfished) and $F_{\text{threshold}}$ (defines overfishing). A determination of either overfished or overfishing triggers a SFA requirement for rebuilding plan (overfished), ending overfishing (overfishing) or both.

Stock. A grouping of a species usually based on genetic relationship, geographic distribution and movement patterns. A region may have more than one stock of a species (for example, Gulf of Maine cod and Georges Bank cod).

TAL. Total allowable landings; the total regulated landings from a stock in a given time period, usually one year.

Year-class. The fish spawned or hatched in a given year.